

**STATEMENT OF**  
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**BEFORE THE**  
**HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR AND RELATED**  
**AGENCIES**  
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Good afternoon, Mr. Chairman and Members of the Subcommittee. Thank you for the opportunity to speak to you on behalf of the U.S. Geological Survey (USGS) regarding our scientific contributions to the stewardship of our Nation's natural resources.

I come before you today to present the Administration's proposal for the budget of the USGS for fiscal year (FY) 2005. The FY 2005 budget will emphasize core USGS science programs that focus on water resources and water availability, natural hazards, biology, information technology, and projects that support science on the Department of the Interior (DOI) landscape. The FY 2005 USGS budget request is \$919.8 million in current appropriations, a decrease of \$18.2 million from the FY 2004 enacted level. The FY 2005 President's budget continues the Survey's scientific excellence in providing research results and resource monitoring data in the earth science fields of geography, geology, biology, and water.

I would like to thank the Subcommittee for its support of the USGS over the years. My statement today recognizes the 125<sup>th</sup> anniversary of the USGS, provides a summary of recent accomplishments, and summarizes the FY 2005 budget request for its core responsibilities.

**125<sup>th</sup> ANNIVERSARY OF THE USGS**

This year marks a significant milestone in the history of the USGS. On March 3, 2004, we celebrated the 125<sup>th</sup> anniversary of the creation of the USGS by the Organic Act of the 45<sup>th</sup> Congress. In this anniversary year, we will celebrate the traditions that have shaped us, the mission that has guided us, the people who have made the science great, and the technology that will lead us into the future.

Since March 3, 1879, the USGS has provided the people and communities of the United States with the science information they need to make important individual and public decisions and to safeguard society. In 1879, the Federal Government held title to more than 1.2 billion acres of land, nearly all of it west of the Mississippi River. Only 200 million acres of this land had been surveyed.

The USGS has accomplished a great deal since that time. We have produced 55,000 topographic maps that represent the topographic coverage of the Nation. We now have available on-line more than 181 million individual daily streamflow values, measured at more than 21,000 locations throughout the United States, and operate more than 7,000 streamgages nationwide. This past year the USGS located more than 30,000 earthquakes worldwide by collecting data from an integrated system of national and international seismic networks.

## **ACCOMPLISHMENTS**

Let me take a moment to share a few accomplishments over the past year, which show how the investment in the science and monitoring programs of the USGS has paid sound dividends for the Nation.

### **Science Information for Decision Making**

Through *The National Map*, we are making excellent progress in refocusing our efforts to provide a common set of current, accurate, and consistent basic geospatial data that meets the Nation's needs in the 21st century. A keystone of this approach is partnerships with State and local governments and the private sector. For example, USGS imagery is used to support the current geographic data needs of North Carolina's urban areas and yielded local participation in the form of data and matching resources. The participants range from metropolitan Mecklenburg and Wake Counties to rural Henderson County. There are similar results from 21 other States and the District of Columbia. As proposed by the President, it is vital that we capitalize on these early successes by reinvesting the savings from our recent buy-out offer to establish new State and local government partnerships to further *The National Map* and to increase the use of the private sector to integrate data and to develop data where no other sources of data exist.

The USGS is taking a leadership role in the battle against harmful invasive plants, animals, and wildlife diseases in the U.S. Our new National Institute of Invasive Species Science is working with States, other agencies, non-government organizations, and citizen groups to map tamarisk (salt cedar), Russian olive, and cheatgrass in the western U.S. As you know, tamarisk and Russian olive steal water and degrade wildlife habitat, while cheatgrass devalues rangelands and promotes wildfires. The USGS is completing the first assessment of invasive species threats in the 554 units of National Wildlife Refuge System. We have also developed a long-term partnership with scientists at NASA Goddard Space Flight Center to better predict the distribution and spread of invasive species throughout the United States. In 2003, scientists from the USGS, NASA, and Colorado State University began testing predictive models to map invasive plant species "hotspots" throughout Colorado, expanding the work in 2004 to the Western U.S.

The USGS has just completed a study (USGS Circular 1243) that documents water-level changes in the High Plains aquifer. The High Plains aquifer provides the water to irrigate crops on about 27 percent of the irrigated land in the United States and provides drinking water to 82 percent of the people who live within its boundaries. The intense use of ground water has caused major

declines in ground-water levels, raising concerns about the long-term sustainability of irrigated agriculture in many areas of the High Plains. The changes are particularly evident in the central and southern parts of the High Plains, where more than 50 percent of the aquifer has been dewatered in some areas. Our plans for the assessment of water availability and water use propose that we provide similar assessments of other important aquifers of the Nation.

### **Real-time Technology**

In 2003, in Washington, the USGS worked with the National Weather Service and local agencies to combine detailed digital elevation models (produced by high-resolution LIDAR mapping) with a robust, efficient, two-dimensional flow model to predict the extent of forecasted floods before the floods began. This technique enables residents and emergency officials to determine what areas need to be evacuated and when. This remarkable technology is transferable to any location with high-quality LIDAR data to define the topography of the downstream floodplains.

A team of USGS and NASA scientists investigating the impacts of Hurricane Isabel also used this technology. Two days prior to landfall last year, and two days after landfall, the beaches and dunes of Virginia and North Carolina were surveyed with NASA's EAARL (Experimental Advanced Airborne Research Lidar). Detailed measurements captured the extreme changes that occurred along the coast, including the development of a major breach that severed Hatteras Island and North Carolina Highway 12. These data are being used to quantify the changes and to test models that predict the impact of extreme storms on the hurricane-threatened coasts of the southeast United States.

There have been technical advances in streamflow measurement techniques; the most significant has been the deployment of acoustic Doppler current profilers (ADCPs). These technologies add to our efficiency. For example, in the summer of 2004, the USGS Indiana office deployed field crews to measure streams during record flooding. The crews made 55 measurements over seven days, two or three times more measurements than could be made using older technology.

In 2003, Ventura, San Bernardino, and San Diego counties in California were first hit with extensive fires, then with severe rainfall. This caused massive and deadly debris flows. In the weeks following these wild fires, the USGS took definitive steps to analyze the hydrologic hazards they created and installed a network of 20 rapid deployment-recording rain gages and six discharge-gaging stations in burned basins. These stations and approximately 60 existing streamgaging stations are providing important data to the counties' Alert Systems in real-time.

Earthquake science and seismic technology have advanced greatly in the past 30 years. The USGS is currently working to install an advanced National Seismic System (ANSS) that includes advanced seismic monitoring instruments in earthquake-prone regions such as Los Angeles, San Francisco, Seattle, Anchorage, Salt Lake City, Memphis, and St. Louis. This instrumentation will mitigate risk, enable better understanding of the damage caused by shaking, and help engineers create stronger and sounder structures to save vital utility and communication networks. The ANSS instruments will give emergency response personnel real-time maps of ground shaking immediately following earthquakes – getting the right people to the areas of greatest damage.

## **USGS CORE SCIENTIFIC RESPONSIBILITIES**

The FY 2005 budget request continues the Administration's commitment to strengthen science support to the Department's land and resource management bureaus by proposing a \$1.2 million increase for science on Interior lands. This program will provide funds for enhanced earth and biological science to meet the needs of Interior's bureaus, with an emphasis on cost-sharing and other partnership opportunities to leverage funds.

Looking at the core scientific responsibilities within USGS for FY 2005, the budget will support the transition of the Geography Program toward leadership in geospatial data standards, data consistency, data integration, and partnerships for data collection, maintenance, and dissemination. The FY 2005 budget for Geography is \$118.9 million. In FY 2004, we restructured the geography program and offered buy-outs that will result in an estimated savings of \$12.5 million in FY 2005. This savings will help offset costs for developing and enhancing new partnerships. It will also supply funds to develop science and applications needed to promote geographic integration and analysis and provide tools for specific applications and modeling. The budget includes a \$1.9 million decrease in data collection activities for *The National Map* to accelerate the transition of the program away from traditional data collections efforts toward an emphasis on data standards, data integration, and data applications.

The FY 2005 budget for the Water Program proposes \$202.7 million to continue water resources work. This represents an increase of \$1.4 million for new research on water quality and quantity in the Klamath Lakes in southern Oregon and northern California, where water supply is inadequate to meet demands for irrigation and to sustain critical habitats. A key consideration is the protection of fall-run salmon, including the endangered Coho, in the Lower Klamath River. The budget also includes \$800,000 to implement a new five-year initiative concerned with water availability and use. This increase is supplemented by \$200,000 to provide the geologic mapping to support the water availability and use initiative. As part of the Department's Water 2025 Initiative and in partnership with the Bureau of Reclamation, these increases would fund studies to assess ground-water availability, develop improved methods for characterizing aquifers, and provide scientific information that will help water-resource managers meet water supply needs while preserving biological resources. The budget includes a proposed decrease of \$6.4 million that eliminates USGS funding for each of the 54 State Water Resources Research Institutes that have been generally successful in generating other sources of funding and should be able to support themselves.

The President's FY 2005 budget provides \$220.8 million for the Geology Program. The 2005 budget includes \$500,000 to continue assessments of the potential for the Nation's geothermal energy reserves to produce electrical power, and an \$800,000 increase in earth observation and monitoring to expand INSAR (Interferometric Synthetic Aperture Radar) to monitor ground deformation at several of the 65 active and potentially active volcanoes in the United States. INSAR uses data from satellites to detect small changes in the elevation of the Earth's surface. This technology will enable us to establish a national monitoring capability, with increased tracking of the behavior of priority volcanoes, including Yellowstone Caldera in Yellowstone National Park, Three Sisters Volcano in Oregon, and several Alaskan volcanoes. The FY 2005 budget also maintains funding for the Advanced National Seismic System (ANSS), which

provides accurate and timely information about earthquakes and their effects on buildings and structures using modern monitoring methods and technologies. To provide resources for higher priority efforts, the budget request includes a proposed reduction of \$11.1 million for selected individual projects and lower priority mineral resource efforts.

The FY 2005 budget requests \$167.6 million for the Biology Program to find solutions for and to assist in the mitigation of biological resource problems facing Federal agencies and State, local, and Tribal governments. This includes an increase of \$1.4 million for research into the population dynamics and behavioral ecology of two endangered sucker species in Upper Klamath Lake, Oregon. This information will inform resource-management decisions being made by the Bureau of Reclamation, the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the Klamath Tribes. The budget provides an increase of \$1.0 million for invasive species research for innovative controls and methodologies in the Mississippi River drainage for the Asian carp, as well as research into control of the brown tree snake on Guam and methods for its early detection on other Pacific islands, such as the Commonwealth of the Northern Marianas and Hawaii. Additionally, \$500,000 is requested for a USGS-FWS partnership to meet crucial science needs of deepwater fisheries in the Great Lakes through the Deepwater Fisheries Science program. An increase of \$250,000 is requested to conduct an assessment of ecological systems data holdings across the Nation that will lead to a pilot ecological mapping effort that will benefit Federal and State land and resource management agencies. The budget also includes an increase of \$500,000 to expand carbon research efforts to facilitate carbon trading and storage in the Northern Prairie pothole region. To provide resources for higher priority efforts, the budget also proposes reductions of \$7.7 million.

The FY 2005 budget establishes an Enterprise Information Program and budget activity within the USGS. This program will consolidate all enterprise-level information technology, management, and services to enable a more effective use of resources, and ensure a higher degree of accountability and a more consistent deployment and use of technology throughout the bureau. This program is funded through \$46.7 million in resources transferred from science program activities, and offset by a \$5.3 million decrease that reflects the completion of narrowband radio conversions, accomplishments in some certification and accreditation milestones, and a decrease in accessible data transfer funding. An increase of \$2.5 million is requested to strengthen USGS information technology security and to fund disaster.gov, a government-wide disaster information system. Additionally, an increase of \$1.2 million is requested for implementing a Department-wide Enterprise Services Network.

One last, yet important, increase in the 2005 budget that I would like to mention is \$2.7 million for financial management improvement. The USGS cannot continue to practice world-renowned science without quality business practices to support the science. This increase will enable the USGS to improve its financial, accounting, and other business practices to address identified material weaknesses, to fully comply with Federal accounting standards, and to fulfill Presidential Management Agenda initiatives.

## **CONCLUSION**

Dedicated study over the 125 years since our establishment has made USGS scientific data valuable to millions of citizens. We have evolved from data gathered with picks, pack mules, and wagon trains to remote sensors with real-time data access, satellite-transmitted measurements, and contributions of instrumentation mounted on NASA Mars rovers, "Spirit" and "Opportunity."

It is not just our longevity, however, that we celebrate this year; we also celebrate the strength of our mission, one that has endured because it is relevant and because it has given the American people and the world a wealth of data, long-term scientific understanding, and scientific tools that serve the needs of the American people.

Through the years, we have responded to the changing needs of the Nation. We have seen great improvements in the innovative technologies that track and communicate the changes in our dynamic planet. As a result, our predictive capabilities have expanded, ensuring a future in which we live safer lives and enjoy and prosper from the preservation and use of our Nation's precious natural resources.

I thank the Subcommittee for this opportunity to speak about the scope of the USGS and how it benefits the Nation.